frontiers | Frontiers in Education

TYPE Original Research
PUBLISHED 16 July 2025
DOI 10.3389/feduc.2025.1609736

OPEN ACCESS

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RECEIVED 10 April 2025
ACCEPTED 26 June 2025
PUBLISHED 16 July 2025

CITATION
Lozano-Argüelles C and Martínez-Gómez A (2025) Language learning bridge: how translation and interpreting training impacts bilingual proficiency in heritage and L2 learners.
Front. Educ. 10:1609736.
doi: 10.3389/feduc.2025.1609736

Language learning bridge: how translation and interpreting training impacts bilingual proficiency in heritage and L2 learners

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Introduction: Translation and interpreting training offers a promising context for advancing bilingual proficiency, integrating skill development while bridging second language acquisition and translation studies. This study explores how bilingual oral proficiency develops over a semester and examines the influence of bilingual profile, learner type, and initial proficiency on language growth.

Methods: Twenty-three bilingual learners—primarily heritage Spanish speakers—enrolled in a semester-long translation and interpreting program. Participants completed background questionnaires and ACTFL Oral Proficiency Interviews (OPIs) in English and Spanish at the beginning and end of the semester.

Results: Overall, there were no statistically significant gains in English or Spanish oral proficiency for either heritage or second language learners. However, students with lower initial proficiency levels demonstrated greater gains across the semester, suggesting that initial proficiency is a key factor influencing short-term language development.

Discussion: These findings highlight the complexity of bilingual development and the uneven trajectory of language growth within mixed learner groups. Translation and interpreting coursework may serve not only as professional preparation but also as a vehicle for enhancing bilingual proficiency, particularly for students at intermediate levels. Although conducted at a Hispanic-Serving Institution, the study's implications extend to other higher education contexts serving bilingual or multilingual populations.

KEYWORDS

bilingualism, heritage language learners, proficiency, interpreting, translation

1 Introduction

The growing Hispanic immigrant population in the U.S. indicates an increase in heritage speakers of Spanish in the coming years. This trend highlights the pressing need to better understand how to support the linguistic development and academic success of Hispanic students. Indeed, Hispanic students often experience lower academic achievement, including lower first-year GPA and first-to-second-year retention rates (Latino et al., 2020). Yet, despite consistent findings from K-12 contexts that highlight the cognitive and academic benefits of bilingual education (Collier and Thomas, 2017), many Hispanic-Serving Institutions (HSIs)—as well as other institutions that enroll large numbers of bilingual or immigrant-origin

students—fail to recognize and leverage the bilingual skills of their Hispanic undergraduates. Instead of viewing bilingualism as a strategic resource, enriching academic learning and professional readiness, these institutions often overlook the opportunity to build on and cultivate students' existing linguistic strengths.

To address the gap in supporting bilingual proficiency among Hispanic students, the present study investigates a promising approach: translation and interpreting training as a means to foster proficiency in both oral English and Spanish. Although translation was once viewed skeptically in second language acquisition (SLA) research, it is now increasingly recognized as a valuable "fifth skill" in language courses. This perspective underscores the potential of translation-focused instruction to enhance the complex linguistic abilities needed in today's globalized world (Colina and Lafford, 2017; Gasca Jiménez, 2022). Against this backdrop, this study offers an investigation of translation and interpreting training as a primary mechanism for linguistic development among heritage learners of Spanish and second language (L2) learners of English.

At institutions where a high number of undergraduates identify as Hispanic, translation and interpreting programs may be particularly compelling. Many heritage learners already have experience serving as language brokers within their communities (Martínez-Gómez, 2021), making these courses directly relevant to their lived experiences. Additionally, these programs offer clear career pathways that remain in high demand in the U.S., even in the era of machine translation and artificial intelligence. As such, they provide practical and meaningful learning opportunities for both heritage language and L2 learners.

Building on these institutional and demographic contexts, the present study aims to investigate the linguistic development of Hispanic students in the U.S. college system. By focusing on the impact of translation and interpreting training, it seeks to assess whether these courses leverage students' existing bilingual strengths, which could enhance their academic and professional trajectories. Hence, this research contributes to a more nuanced understanding of how targeted pedagogical interventions can foster bilingual proficiency among diverse learner populations.

2 Language proficiency development

This section examines language proficiency as it relates to diverse bilingual populations, particularly in educational settings serving both L2 learners and heritage speakers. While L2 learners typically develop formal linguistic knowledge through explicit instruction, heritage speakers often possess stronger oral communication skills but may lack metalinguistic awareness and literacy skills in their heritage language (Polinsky and Kagan, 2007; Zyzik, 2016). These asymmetrical proficiency profiles create unique challenges for educators working with mixed groups. Ideally, distinct populations would benefit from separate instructional approaches tailored to their specific needs and existing proficiency profiles. However, understanding proficiency within mixed classroom contexts is essential, as most language programs lack sufficient enrollment or resources to offer separate educational tracks for L2 and heritage learners, instead teaching diverse populations together despite their different needs.

Proficiency is a ubiquitous concept among language professionals as the basis of decision-making; for instance, practitioners and teachers may use it for placement, and researchers for ensuring that a speaker meets the requirements to participate in a study (Olson, 2024). Defining language proficiency is not simple. Ultimately, a definition of proficiency needs to be adapted to a specific purpose. In the educational context.

Proficiency refers to what an individual is able to do regardless of the setting, or where, when, and how the language was learned (ACTFL, 2024, p. 6). This definition, often referred to as functional proficiency, aligns closely with the demands of translation and interpreting—or any professional field—where adaptability across diverse multilingual contexts and topics is crucial.

Bilingual proficiency presents complexities absent in monolingual contexts because bilinguals' language competencies are inherently interconnected and dynamic (Titone and Tiv, 2023). Proficiency in bilinguals is often asymmetrical across languages and domains, with individuals showing higher proficiency in one language (Grosjean, 1989). A significant challenge lies in the measurement tools themselves: while theoretically, the same proficiency scales could be applied to both languages, most existing scales were developed for L2 contexts. Moreover, bilingual proficiency is not static but fluctuates over time based on language use patterns and exposure, challenging static conceptualizations of language competence (see Titone and Tiv, 2023 for a review).

Traditional views of language proficiency have been heavily influenced by theories such as the critical period hypothesis, which popularized the notion that age of acquisition determines ultimate attainment. This perspective has had a lasting impact on translation and interpreting contexts, where the distinction between "A" (native active language) and "B" (non-native active language) languages is based on acquisition chronology rather than actual proficiency.[1] However, decades of research show inconclusive results regarding the critical period, with studies demonstrating that early starters do not necessarily outperform late starters in the long run (Singleton and Leśniewska, 2021; Baumert et al., 2020). Instead, factors such as socioeconomic status (Droop and Verhoeven, 2003), pedagogical practices (Hopp et al., 2022), or prior linguistic knowledge (Zion et al., 2019) play crucial roles in language development, highlighting the need for a more nuanced approach to proficiency assessment in both educational and professional contexts.

In today's increasingly diverse and multilingual society (Beaudrie and Marrero-Rivera, 2024), the demand for bilingual workers has surged (ACTFL and Lead with Languages, 2019). This trend underscores the importance of understanding how to develop functional proficiency in multiple languages best. The practical reality that most programs lack sufficient enrollment to create separate tracks for distinct bilingual populations necessitates approaches that recognize the diverse pathways through which bilingual proficiency

1 The International Association of Conference Interpreters (AIIC) classifies interpreters' working languages as A (native/active), B (non-native but near-native, also active), and C (passive—used for comprehension only). Some interpreters work bidirectionally with A and B languages, while others—especially in multilingual institutions—work primarily from C languages.

develops. The following section will address the role of proficiency in translation and interpreting.

3 Translation, interpreting, and language proficiency

Advanced language proficiency is fundamental to successful translation and interpreting, a fact reflected in both pedagogical practices and theoretical frameworks in the field. Many translation and interpreting programs include proficiency testing as part of their entrance requirements to ensure candidates possess the necessary bilingual skills (Setton and Dawrant, 2016a). Furthermore, various models of translation competence consistently underscore advanced proficiency in at least two languages as a core component of a translator's skill set (Alves and Gonçalves, 2007; Göpferich and Jääskeläinen, 2009; Hurtado Albir, 2017; Lörscher, 2012). Although these models primarily address translation competence, interpreting competence is equally recognized as requiring a bilingual sub-competence, with an emphasis on advanced oral skills. This involves not only declarative knowledge of two languages but also procedural knowledge essential for navigating the textual and communicative demands of the interpreting process (Martínez-Gómez, 2020).

Although there is broad agreement on the need for advanced bilingual proficiency, there are no established benchmarks that clearly define the level of language proficiency required to categorize languages as active (a language into which an interpreter or translator works) or passive (a language from which one interprets or translates but does not produce output in) (Loiseau and Delgado Luchner, 2021). The distinction between the proficiency needed for training and that required for professional practice should also be noted. For professional translation and interpreting, proficiency levels such as ACTFL's Superior could be assumed as necessary. For instance, one cannot translate a highly specialized legal text without Superior level in two languages. According to the Interagency Language Roundtable, the performance levels corresponding to professional translation and interpreting practice (levels 4 and 5: advanced and master professional performance) would require language proficiency levels similar to ACTFL's Superior in two languages. Professionals at these levels of performance are expected to have "flawless" expression and handle "informal, formal, and highly formal discourse" in a variety of specialized fields (ILR, 2005). However, for training purposes, the proficiency required has become a more nuanced issue, depending on the specific goals and structure of the program.

Beliefs about language proficiency also have implications on directionality in translation and interpreting, that is, the languages from and into which a professional can work. Traditional recommendations about directionality in translation and interpreting—professionals should only translate into their native language—are based on the assumption that one's native language is also their dominant language, a perspective that does not always hold true (Colina and Angelelli, 2024). This assumption parallels the critical period hypothesis discussed earlier, where native or early-acquired languages are presumed superior regardless of an individual's actual proficiency profile or educational background. In fact, traditional assumptions do not align with the realities of the global translation market, where there is often a demand for translators working into non-native languages, especially in multicultural and multilingual contexts or with languages of limited diffusion (Kajzer-Wietrzny and Chmiel, 2023). Consequently, the field acknowledges the multifaceted nature of language proficiency, embracing the complexity inherent in both languages themselves and the bilingual individuals involved in translation and interpreting (Valdés and Angelelli, 2003).

4 Language teaching and translation and interpreting

The nuanced view of proficiency discussed above—recognizing diverse bilingual profiles beyond simplistic native/non-native distinctions and acknowledging that proficiency development follows multiple pathways—has important implications for language teaching in translation and interpreting programs. A key distinction exists between pedagogical translation—using translation as a tool to facilitate language acquisition (i.e., translation as a means)—and translation pedagogy, which focuses on teaching translation skills for professional purposes (i.e., translation as an end) (Carreres, 2014). This distinction is crucial for understanding how translation has historically been employed in both language learning and translator training, and how these approaches have informed each other.

Historically, the relationship between language teaching and translation has been complex (Colina, 2002). Early language pedagogies, like the grammar-translation method, relied heavily on translation as a language learning tool. However, with the rise of communicative approaches, translation fell out of favor, as the use of the first language (L1) was discouraged in favor of maximizing the use of the target language. These communicative approaches, which still dominate many language classrooms today, often prohibit the use of L1, despite evidence suggesting that translation can be a beneficial strategy for language learning for L2 and heritage learners (Gasca Jiménez, 2022; Colina and Lafford, 2017; Mellinger and Gasca-Jiménez, 2019). According to Colina and Lafford (2017), translation can be used as a "fifth skill" in language learning, allowing learners to engage with the target language in a structured yet communicative manner.

In contrast, translation training programs traditionally dismissed language teaching, assuming that advanced proficiency in the working languages was a prerequisite for translation practice (Carreres, 2014; Colina, 2006). However, contemporary research has challenged this dichotomous view, advocating for a more integrated approach where students can simultaneously develop both translation skills and language proficiency (Colina and Lafford, 2017). This perspective acknowledges that the path to professional readiness can involve the concurrent development of both language and translation skills.

Despite these theoretical advancements, there is still limited empirical evidence regarding the impact of translation and interpreting courses on bilingual proficiency. Although some programs incorporate techniques like "inverse translation" to improve L2 skills (Kelly, 2005) and recommend language enhancement within interpreting courses (Setton and Dawrant, 2016b), no study has empirically measured whether or how much translation and interpreting training yields proficiency gains. This is particularly pertinent in the diverse bilingual contexts of the United States, where L2 can refer to either English or Spanish (or any other language),

depending on the learner's bilingual profile (Fernandez Cordero Ciller, 2019; Lozano-Argüelles, 2023; Mellinger and Gasca-Jiménez, 2019). Importantly, translation students' limited proficiency in their working languages has been described as a problem that hinders translation competence acquisition (Colina, 2015; Li, 2012; Malmkjær, 1998). The present study addresses this gap by examining the development of oral proficiency in Spanish and English of students enrolled in a translation and interpreting program at an HSI with a highly diverse bilingual profile, and hence serving as a link between *translation as an end* and *translation as a means* (Carreres, 2014).

5 Heritage learners and distinct language learning needs

The demographic landscape of language and education in the United States is rapidly transforming. The most recent US census data shows a 23% increase in the Latinx population from 2010 to 2020, compared to a 4.3% increase in the non-Latinx population (U.S. Census Bureau, 2020). The increase in the overall Latinx population in the US is mirrored by a stronger presence of Latinx students in US higher education, leading to a rise in research and undergraduate programs focused on understanding and studying Latinx students (Beaudrie and Marrero-Rivera, 2024). However, this population continues to face significant educational challenges, with a persistent attainment gap between Hispanic individuals and the broader American population (National Center for Education Statistics, 2022).

Demographic and educational complexities are particularly evident in the realm of heritage language speakers—a population that sits at the intersection of linguistic diversity, cultural identity, and educational opportunity. Drawing from Valdés (2005) foundational definition of heritage speakers as bilinguals raised in homes where a language other than the dominant community language is spoken, we further contextualize our participant selection by considering critical educational milestones. Specifically, we define heritage learners as individuals who acquired both English and Spanish by age 10, a pivotal developmental period in the New York State Department of Education's K-5 educational framework. This methodological choice reflects the interconnection of language development and educational progression, capturing a critical moment when bilingual students establish fundamental linguistic competencies across both their heritage and dominant languages.

The linguistic profile of heritage learners fundamentally differs from that of L2 learners, requiring tailored language training approaches (Kagan and Dillon, 2012; Torres et al., 2017). These differences emerge from unique acquisitional paths shaped by varied factors: the informal acquisition environment (home versus classroom), age of language exposure, and the societal status of the language. For instance, research has shown that grammatical instruction, such as teaching the past subjunctive, yields different outcomes for heritage and L2 learners, with L2 learners demonstrating greater improvements in grammaticality judgments than heritage learners (Potowski et al., 2009a).

Measuring proficiency among heritage learners presents challenges, as traditional tests for L2 learners often rely on metalinguistic knowledge, which may not accurately reflect heritage learners' capabilities (Carreira and Potowski, 2011). Choosing an appropriate tool is crucial to accurately capture the proficiency levels of heritage language learners. Functional proficiency measures, such as those developed by ACTFL, have proven effective in this regard (Swender et al., 2014). When using these measures, heritage and L2 learners show divergent patterns, with L2 learners typically showing stronger writing than oral proficiency (Bernhardt et al., 2015), and heritage learners exhibiting the opposite pattern (Gatti and Graves, 2020).

Improving the language proficiency of bilinguals has positive social, linguistic, academic, and economic effects. For heritage learners, developing advanced linguistic and cultural skills is linked to an increased sense of personal identity, self-pride, and connectedness to their communities (Li and Duff, 2008); increased high school graduation rates and access to higher education (Jang and Brutt-Griffler, 2019); and higher retention rates among undergraduates (Prada and Pascual y Cabo, 2022). Moreover, the US labor market requires more bilingual workers (ACTFL and Lead with Languages, 2019) and heritage learners have been identified as crucial in capacity building for a multilingual workforce (Commission on Language Learning, 2017).

Despite these potential benefits, heritage language programs face significant implementation challenges. Most institutions struggle to develop specialized courses due to low enrollment, limited resources, and a shortage of trained faculty (Carreira, 2015; Beaudrie and Marrero-Rivera, 2024). Furthermore, existing language instruction often relies on methodologies developed for L2 learners, which may be less effective for heritage speakers (Potowski et al., 2009a; Torres, 2013; Zyzik, 2016).

One innovative approach to addressing these challenges involves integrating translation and interpreting courses specifically designed for heritage speakers. Many heritage speakers already have informal translation experience—a practice known as child language brokering—which provides a unique foundation for more structured linguistic training. While translating for family members can place undue pressure on young children, formal training can transform this inherent skill into a valuable academic and professional competency (López, 2020; Martínez-Gómez, 2021).

By recognizing and leveraging the distinctive linguistic repertoires of heritage speakers, educational institutions can develop more responsive and effective language programs. Our study explores this potential by examining how specialized translation and interpreting training can support heritage learners' linguistic development and professional opportunities.

6 The study

This study examines the impact of translation and interpreting training on bilingual proficiency development and explores whether initial proficiency and bilingual profiles influence changes in functional proficiency. Participants were enrolled in a Certificate of Translation and Interpreting program at a large public urban institution designated as an HSI. Students who enroll in this program are typically heritage speakers of Spanish and L2 learners of English, but not L2 learners of Spanish. The study took place during the participants' first semester in the program, specifically within the Interpreting I course (delivered online synchronously), while students were also concurrently enrolled in Translation I. The certificate program spans three consecutive semesters, comprising four general

courses (Translation I & II, Interpreting I & II), three specialized courses (Legal Translation, Legal Interpreting, Legal Interpreting II), and a course focused on Spanish for specific purposes tailored for criminal investigation.

We focused on oral proficiency for both theoretical and practical reasons. First, prior research (Gatti and Graves, 2020) has found that heritage learners in similar institutions often have intermediate proficiency, which may not be sufficient for professional performance. Second, interpreting is an oral activity, and the OPIc provides a direct and validated measure of functional language use, which aligns with the ACTFL definition of language proficiency emphasized in this study. ACTFL's framework defines language proficiency in terms of what speakers can do across real-world tasks, making oral performance a relevant outcome. Third, one of the main issues reported by instructors and administrators of translation and interpreting programs in the U.S. is low language proficiency (Fernandez Cordero Ciller, 2019). Because most programs lack pre-professional language development courses, it is crucial to ensure that students' proficiency improves during the training itself.

The first research question investigates the impact of translation and interpreting training on oral proficiency in English and Spanish—as measured through the Oral Proficiency Interview in English and Spanish. We hypothesize that Spanish oral proficiency will initially be lower than English oral proficiency but will significantly increase after one semester in the translation and interpreting program. This expectation is supported by the fact that the instruction language for this program is Spanish, which is expected to enhance Spanish proficiency more effectively. Moreover, research indicates that most students in this program are heritage language learners who perceive their Spanish proficiency as lower than their English proficiency (Lozano-Argüelles, 2023), suggesting that the intensive use of Spanish in an educational setting might help close this perceived gap.

The second research question examines whether changes in proficiency are influenced by bilingual profile (English-dominant, Spanish-dominant, balanced bilingual), learner type (heritage, L2) and initial proficiency level. This question generates two hypotheses. First, we expect that English-dominant bilinguals will experience greater proficiency gains, as the classes in the program are taught in Spanish, providing them with increased exposure and input in academic Spanish. Second, we assume that students with lower initial proficiency levels will show more significant improvements. These findings would align with studies indicating that heritage language functional proficiency is more likely to develop over a semester when the starting proficiency is lower, for heritage (Fernandez Cordero Ciller, 2019) and L2 learners (Liskin-Gasparro, 1984).

7 Methods

7.1 Participants

The study initially involved 25 bilingual participants fluent in English and Spanish, but the final analysis included 23 participants, as two did not complete the end-of-semester assessments due to withdrawing from the class (IRB #2023-0378). Participation in the study was worth 5% of the course grade, with an alternative assignment available, though no student opted for it. From the final sample pool (22 female, 1 male), 65.22% were heritage speakers of Spanish (who acquired English and Spanish before the age of 10, growing up mostly in the US) and 34.78% were L2 learners of English (who started acquiring English after the age of 10). The participants had an average age of 23.04 years (SD = 6.92, range: 18–46). The mean age of acquisition was 0.09 years (SD = 0.42) for Spanish and 7.96 years (SD = 5.42) for English. Fourteen students were born outside of the US and immigrated at an average age of 13.86 years (SD = 5.11, range: 3–23). Interestingly, the distribution of bilingual dominance across bilingual types reveals distinct patterns. Heritage speakers predominantly exhibit English dominance ($n = 10$), with fewer being balanced bilinguals ($n = 3$) or Spanish dominant ($n = 2$). In contrast, L2 learners are primarily Spanish dominant ($n = 6$), with balanced bilinguals and English dominant individuals each represented by only one participant. These results suggest that heritage speakers lean towards English dominance, whereas L2 learners are more likely to exhibit Spanish dominance (see Figure 1).

7.2 Materials

Students completed three sets of tasks measuring: language acquisition and use, experiences as child language brokers, oral proficiency in English and Spanish, and interpreting performance. All tasks were collected at the beginning (pre-test) and end of the semester (post-test). The first task was a questionnaire that included items related to language acquisition and use, adapted from validated language experience questionnaires LHQ3 (Li et al., 2020) and LEAP-Q (Marian et al., 2007); such as the age of acquisition for English and Spanish, languages used with caretakers during childhood, first-generation status, language frequency of use, self-rated proficiency, prior experience with formal education in Spanish, and code-switching practices. The second part of the questionnaire focused on questions related to their experiences as language brokers and feelings toward the task of interpreting (Weisskirch, 2006, 2007; Martínez-Gómez, 2021) (see Appendix 1 for the complete questionnaire).

The second task entailed completing the official Oral Proficiency Interview-Computerized (OPIc) from the American Council on the Teaching of Foreign Languages (ACTFL) in English and Spanish. The OPIc is a reliable measure of oral proficiency that provides a score based on the 2024 ACTFL Proficiency Guidelines, ranging from Novice-Low (no functional ability) to Superior (highly articulate, well-educated language user). Students first select their interests and provide personal information, after which they receive multiple speaking prompts tailored to the details they entered on the online platform. This instrument has been previously validated as an accurate functional proficiency measure for heritage learners as well (Swender et al., 2014). Moreover, the test is available in multiple languages, allowing us to have comparable scores in both English and Spanish. Finally, for the third task, participants completed a liaison interpretation[2] individually through the online platform GoReact. The

2 Also known as bilateral or short consecutive interpretation, it is a form of interpreting in which the interpreter facilitates communication between two or more people who speak different languages, usually in small-group or one-on-one settings. It typically involves short exchanges and consecutive interpretation, often used in medical, legal, or community contexts.

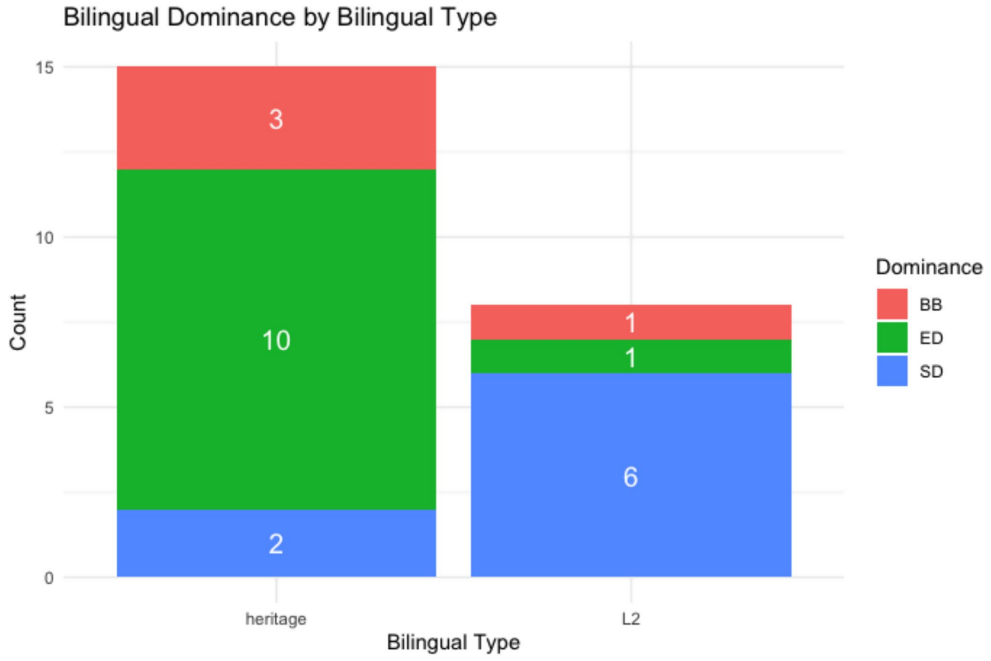

FIGURE 1
Distribution of bilingual dominance (ED, English dominant; SD, Spanish dominant, BB, balanced bilingual) by bilingual type (heritage, L2 speaker of English).

present study focuses on results from the background questionnaire and OPIc in both English and Spanish.

7.3 Procedure

Data collection took place during multiple sessions at the beginning and end of the semester. Students first completed the online Qualtrics questionnaire and narrative individually at home (40 min). Students completed two OPIc (one in English, one in Spanish) during class, connecting to Zoom on a secondary device (e.g., tablet or smartphone) while taking the test on their computer. Due to OPIc platform restrictions preventing simultaneous Zoom use, this setup allowed the instructor to proctor the test, as recommended by Language Testing International (60 min for both tests). Finally, the interpreting test was completed individually at home through the online video platform GoReact (15 min). The same procedure was repeated at the end of the semester, except for questions related to fixed factors of language acquisition, which would not change over time (e.g., age of acquisition, languages used in K-12 education, etc.) and were therefore removed.

7.4 Analysis

Data from the Qualtrics questionnaire and results from the OPI were analyzed using R Version 4.4.0 (R Core Team, 2023), as well as packages *lme4* to fit the models (Bates et al., 2009). Descriptive statistics were used to determine initial language dominance and to calculate improvements in English and Spanish proficiency scores over time. Additionally, a linear mixed-effects model was fitted to examine the impact of translation and interpreting training on bilingual proficiency, including time, language, and their interactions as fixed effects, and participant as a random intercept. We employed nested model comparisons and a forward stepwise approach to determine the inclusion of main effects and interactions. Another mixed-effects model was used to investigate whether proficiency changes were influenced by initial proficiency, language, and bilingual profile, allowing us to assess predictors of individual variability in proficiency development. Bilingual profile and learner type were treated as categorical variables, and initial proficiency was treated as a continuous predictor. Random intercepts for participants were included to account for within-subject variability. In essence, the model tested whether students with different language backgrounds improved more or less, depending on how they started.

8 Results

8.1 Proficiency results

Scores from the OPIc were converted to numerical values (0 = Novice Low, 9 = Superior) to calculate language dominancy and changes over time. Based on the initial OPIc scores, students were categorized as English dominant (higher English score) 47.83%, Spanish dominant (higher Spanish score) 34.78%, and balanced bilinguals (same score in both languages) 17.39%. On average, both languages showed improvement over time. English scores increased from 7.30 (SD = 1.26) to 7.74 (SD = 0.81), indicating progress from Advanced Mid (7) towards Advanced High (8). Spanish scores improved from 6.91 (SD = 1.04) to 7.17 (SD = 0.72), reflecting a shift

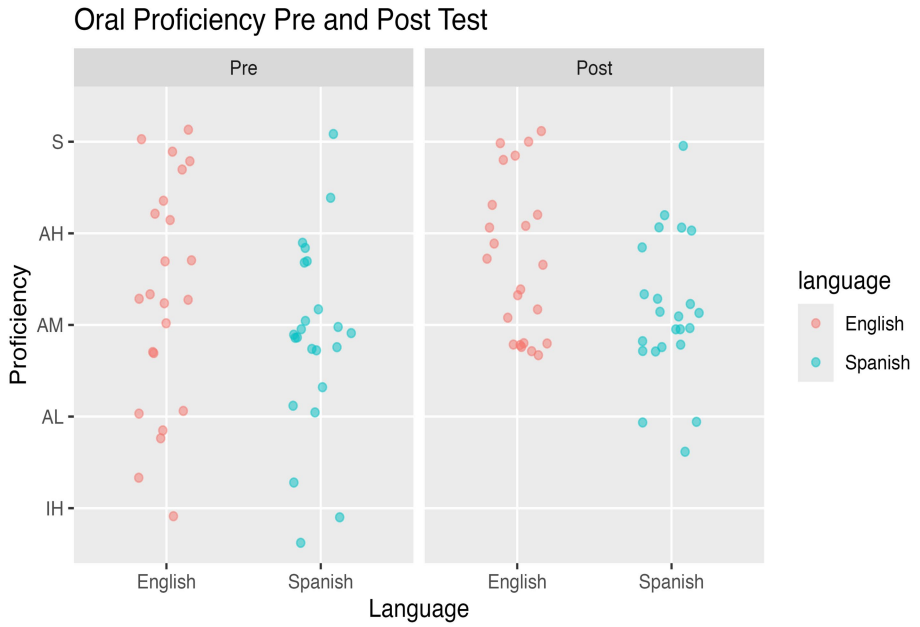

FIGURE 2
Proficiency scores obtained in the English and Spanish Oral Proficiency Interview—Computerized, at the beginning (Pre) and end (Post) of the semester. IH, Intermediate High; AL, Advanced Low; AM, Advanced Mid; AH, Advanced High; S, Superior.

from Advanced Low (6) towards Advanced Mid (7). Figure 2 shows disaggregated data on bilingual proficiency at the semester's beginning (Pre) and end (Post).

8.2 Effects of translation and interpreting training on proficiency

Our first model assessed the impact of time (pre-test vs. post-test) and language (Spanish vs. English) on proficiency scores using a linear mixed effects model. We employed a forward stepwise procedure, progressively adding time, language, and their interaction. While including time and language significantly improved the model, the interaction term did not contribute significantly. The final model includes time and language as fixed effects, with participant as a random intercept (formula: *score~time+language+*(1|*participant*)[3]).

The fixed effects estimates revealed significant differences in proficiency scores based on language. The intercept was estimated at 7.35 (SE = 0.18, $p < 0.001$), representing the baseline proficiency score for English (roughly Advanced Mid level). The effect of time (pre-test, post-test) was positive but not statistically significant ($t = 0.35$, SE = 0.19, $p = 0.069$), suggesting an overall trend towards increasing proficiency over time. Importantly, the fixed effect of language showed a significant difference between groups, with Spanish proficiency scoring lower on average than English proficiency ($t = -0.48$, SE = 0.19, $p = 0.013$). This indicates a meaningful effect of language on proficiency scores. While there is a positive trend in proficiency scores over time, as shown in Figure 2, the change is not statistically significant at the conventional 0.05 level. Overall, these findings suggest that while translation and interpreting training may lead to an improvement in bilingual oral proficiency, the effect is more pronounced in English compared to Spanish.

8.3 Effects of initial proficiency, language, and bilingual profile on change size

Another linear mixed-effects model investigated whether changes in proficiency were affected by bilingual profile (English dominant, Spanish dominant, Balanced bilingual), group (heritage learner, L2 learner of English), language (English, Spanish), and initial proficiency level (pre-test OPI score). Based on pre-test OPIc scores, students with a higher English score were identified as English dominant (ED), a higher Spanish score as Spanish dominant (SD), and the same score in both languages as balanced bilinguals (BB). Group was identified based on age of acquisition of English, with those acquiring English before the age of 10 identified as heritage learners of Spanish, and those who acquired English after 10, L2 learners of English.[4] The dependent variable of proficiency change was calculated by subtracting pre-test OPIc scores from post-test OPIc scores for both languages. The model included random intercepts for participants to account for individual variability. The final formula used was: *ProficiencyChange ~ initial prof + bilingual profile * group +(1/participant),* testing

3 We initially included time as a random slope but removed it due to model singularity, which suggested potential overfitting.

4 The student population in this program does not typically include L2 learners of Spanish, which means their absence was not a deliberate exclusion but a characteristic of the program's demographic.

whether students with different language backgrounds improved more or less, depending on how they started, while adjusting for variability across individuals.

The model revealed a negative association between initial proficiency score and subsequent change in proficiency, $t(39.96) = -5.16$, $p < 0.001$, indicating that participants with higher initial proficiency tended to show less improvement over time. Bilingual profile was also a significant predictor: Spanish-dominant participants demonstrated significantly smaller gains than balanced bilinguals, $t(19.83) = -2.14$, $p = 0.045$. Group membership had a significant main effect: heritage learners experienced smaller gains than L2 learners, $t(39.99) = -2.32$, $p = 0.026$. Finally, there was a significant interaction between group and initial proficiency score, $t(39.88) = 2.25$, $p = 0.030$. This interaction suggests that the negative relationship between initial proficiency and improvement was less pronounced for heritage learners than for L2 learners. In other words, although higher initial proficiency generally predicted smaller gains, heritage learners appeared to retain more capacity for improvement even at higher starting proficiency levels. In summary, the results suggest that changes in proficiency are influenced by both linguistic background (bilingual profile) and learner type (heritage vs. L2), as well as by the participant's initial proficiency level, with heritage learners showing a distinct trajectory that may reflect differences in language experience or learning context.

To better understand the pattern of results, we examined the average changes and initial scores across groups and bilingual profiles. On average, English L2 learners showed a larger mean improvement (M = 0.44) than heritage learners (M = 0.30), which mirrors the model's finding that heritage learners improve less. However, this difference is partly explained by their starting points: heritage learners began with slightly higher proficiency (M = 7.13) than English L2 learners (M = 7.06), and—as the model showed—those with higher initial scores tended to improve less. A similar trend appeared with bilingual profiles: balanced bilinguals—who had relatively lower initial scores (M = 6.75)—exhibited the greatest improvement (M = 0.88), while English-dominant individuals, who started at a higher proficiency on average (M = 7.32), demonstrated more modest gains (M = 0.14). These descriptive statistics reinforce the interpretation that what may initially appear as group-based differences in improvement is largely shaped by participants' starting proficiency levels.

9 Discussion

This study investigated how translation and interpreting training affects bilingual functional speaking proficiency, focusing primarily on heritage learners. We examined how changes in proficiency were influenced by participants' bilingual profiles—determined by their language dominance and learner type (heritage or L2)—and their initial proficiency levels. Results revealed that, as predicted, most students were English-dominant. Unexpectedly, while Spanish proficiency showed a trend toward improvement, English proficiency seemed to yield a slightly larger gain, though neither language showed a significant improvement. Additionally, while bilingual profile (being dominant in either language or balanced in both) did not influence proficiency changes, group seemed to have an effect with heritage learners showing smaller gains than L2 learners of English. However, these differences seem to be mediated by initial proficiency, with students who had lower initial scores experiencing the greatest gains. These findings contribute to SLA proficiency development models, supporting the notion that language acquisition can be effectively promoted in settings that include diverse bilingual learners. They also hold pedagogical implications, suggesting that translation and interpreting training can effectively enhance language skills, particularly for those starting at the Intermediate High proficiency.

The first research question investigated whether translation and interpreting enhanced bilingual proficiency. Our hypothesis that Spanish oral proficiency would initially be lower than English oral proficiency but would significantly increase after one semester was only partially supported. While Spanish oral proficiency was indeed lower than English, the overall increase was not statistically significant, with English showing a more promising trend of improvement.

Different reasons could explain this unexpected finding. First, one semester may be too short to observe significant proficiency development, especially at higher proficiency levels. Indeed, a robust study of over 800 college language learners of oral proficiency development found that students increased an average of only one-third of a sublevel per semester (Isbell et al., 2019). Second, despite the translation and interpreting program's Spanish-language instruction, students' broader academic environment remains predominantly English-based, resulting in greater exposure to academic language in English than in Spanish.

While we did not directly measure cross-linguistic transfer, our findings suggest an intriguing pattern: students showed slight improvement in English proficiency despite receiving instruction primarily in Spanish. This may reflect a broader principle of linguistic interdependence, whereby gains in one language can positively influence proficiency in another—a phenomenon well documented in bilingual education research (Swain, 1990; Cummins, 1981).

Although our data were not designed to directly assess this transfer, these preliminary results suggest that translation and interpreting training could create environments where cross-linguistic skills are activated and reinforced. Classes in this program are primarily in Spanish, but they function as a bilingual learning environment in practice. Students routinely engage in tasks that require switching between Spanish and English, especially during translation and interpreting exercises. This setting may resemble the dynamics of K-12 bilingual education, where research has consistently shown that bilingual instruction not only supports minority language development but also enhances literacy in the dominant language. For example, studies from the United States, Australia, and Europe (Collier and Thomas, 2017; Fielding and Harbon, 2022; Hopp et al., 2020) demonstrate that students in bilingual programs tend to outperform their monolingual peers in English literacy outcomes. In this light, the observed improvement in English proficiency—despite the course's Spanish-language focus—supports existing evidence that bilingual learning contexts can reinforce, rather than compete with, the development of English academic skills.

One factor that may have contributed to the modest proficiency gains is the course's design, which was not specifically tailored to the needs of heritage learners. Translation and interpreting pedagogies are typically built on translation competence models developed for L2 learners (e.g., PACTE, 2017), which do not account for the distinctive

linguistic trajectories of heritage speakers—particularly their early exposure to the heritage language and later dominance shift toward English (Zyzik, 2016). Similar to L2-oriented language courses, these pedagogies may not align with heritage learners' strengths and needs (Potowski et al., 2009a). Future iterations of the course could incorporate heritage learners' prior experience as informal interpreters or language brokers to better support their language development (Martínez-Gómez, 2021).

The absence of L2 learners of Spanish in our sample also warrants discussion. Ideally, a full comparison would include three bilingual profiles: heritage speakers, L2 learners of English, and L2 learners of Spanish. However, the program's demographic composition—primarily Hispanic students, both U.S.-born and foreign-born—reflects broader trends at many HSIs. While this limits generalizability, we prioritized ecological validity, aiming to capture authentic student populations rather than impose laboratory-like conditions.

The second research question investigated how bilingual profile and learner type influence proficiency changes over a semester. Our findings reveal a nuanced picture of language development among heritage and L2 learners of English. Contrary to our initial hypothesis that English-dominant would experience greater proficiency gains, balanced bilinguals showed the most substantial improvements, with Spanish-dominant participants experiencing the smallest gains. This pattern is partly explained by initial proficiency levels: balanced bilinguals began with the lowest average proficiency scores (M = 6.75), positioning them to demonstrate greater potential for improvement. Similarly, learner type emerged as another influential factor, with L2 learners of English demonstrating larger proficiency gains compared to heritage learners. Again, this difference can be partially attributed to initial proficiency, as heritage learners started with slightly higher proficiency levels (M = 7.13) than L2 learners (M = 7.06). Because these variables interact in complex ways, it would be misleading to draw simple conclusions about which group improves more. Apparent differences in outcomes often reflect underlying differences in starting points, language dominance, and learner histories, which jointly shape proficiency development. The most intriguing finding was the significant interaction between group and initial proficiency. While higher initial proficiency generally predicted smaller improvements across all participants, this relationship was less pronounced for heritage learners. Heritage learners appeared to maintain a greater capacity for improvement even at higher proficiency levels, suggesting distinct developmental trajectories that merit further investigation.

Our descriptive statistics could provide additional explanations as for why balanced bilinguals and L2 leaners might have shown greater gains due to their relatively lower initial proficiency. Methodologically, our study demonstrates the value of using mixed-effects modeling to unpack complex interactions in language development. By accounting for individual variability and examining multiple predictors simultaneously, we gained insights that might have been obscured by more traditional analytical approaches. These results align with and extend existing research on bilingual language development. They underscore the importance of considering multiple factors—bilingual profile, learner type, and initial proficiency—when understanding language learning processes. The findings suggest that language development is not a uniform process but varies significantly based on individual linguistic backgrounds.

The important role of initial proficiency on proficiency development is consistent with studies on writing proficiency, indicating that heritage learners with lower initial writing proficiency levels are more likely to improve significantly over a semester than those with higher writing proficiency levels (Gatti et al., 2024). While our study deals with writing proficiency and not written proficiency, the gap between oral and written proficiency in heritage learners is smaller than what many assume, with writing being only one sublevel lower than speaking in most heritage learners with higher speaking than writing proficiency (Gatti and Graves, 2020). Thus our findings indicate that both writing and oral proficiency develop quicker at lower than higher levels. Research on the time required to achieve each specific proficiency level is limited. Nonetheless, attaining higher proficiency levels, particularly transitioning from the Advanced to the Superior level, could require significantly more time. The functions and language typical of the Superior level—such as engaging with abstract topics in formal settings, explaining complex matters, and developing hypotheses (ACTFL, 2024)—are highly infrequent in everyday use and typically demand years of higher education. This contrasts sharply with Novice or Intermediate levels, which can often be reached after a few months of intensive training by individuals with average language aptitude. For instance, assuming an average language learning aptitude, progressing from Novice Low to Intermediate Mid in Spanish (a total of 5 sublevels) would take 240 h, while advancing from Intermediate Mid to Advanced Low (3 sublevels) would also require 240 h (Language Testing International, n.d.).

Pedagogically, these findings suggest potential implications for both SLA and translation and interpreting studies. While our current results provide initial insights, they point to the need for more nuanced research into the linguistic development of heritage and L2 learners in translation and interpreting programs. Our data indicate preliminary evidence that specialized approaches might be beneficial for heritage language learners, particularly those with complex linguistic backgrounds. However, further empirical research is necessary to substantiate these observations.

Specifically, our results hint at the potential value of a dual focus on form and meaning in language learning, which differs from traditional L2 teaching methods. Building on existing literature, we propose that translation and interpreting training may offer a unique cognitive environment for language development. From a cognitive standpoint, translation and interpreting programs require a deliberate focus on form and meaning. This dual focus is in contrast to traditional L2 teaching methods that emphasize form over meaning, which have often proved unfruitful for heritage speakers (Potowski et al., 2009b). Effective methods for these learners tend to engage meaning as a salient aspect of linguistic messages (Torres, 2013), which aligns well with the nature of translation and interpreting training. Indeed, the practice of translation and interpreting demands a high level of cognitive engagement and the coordination of multiple cognitive processes. Nevertheless, this hypothesis requires rigorous longitudinal studies with larger, more diverse samples to validate its potential pedagogical benefits.

Our findings also reveal important complexities. The modest proficiency gains across both heritage and L2 learners suggest that translation and interpreting training may not be a simple solution for language development. Notably, our results showed differential impacts based on bilingual profile and initial proficiency. Balanced bilinguals demonstrated the most significant improvements, while Spanish-dominant participants showed the smallest gains. While this

pattern is partly attributable to balanced bilinguals' lower initial proficiency scores (allowing more room for improvement), it also suggests that the effectiveness of translation and interpreting training may depend on learners' existing linguistic repertoires.

Another potential explanation for the greater gains observed among balanced bilinguals lies in the cognitive demands of translation and interpreting. According to Bialystok and Ryan's (1985) proficiency model, language development is supported by two core cognitive mechanisms: *linguistic analysis* (the ability to reorganize and reflect on language) and *processing control* (the ability to focus attention selectively). Translation and interpreting exercises naturally engage both of these mechanisms. For balanced bilinguals—who already navigate between two languages with relative ease—this cognitive engagement may provide ideal conditions for strengthening metalinguistic awareness and control, thus facilitating proficiency gains.

This study has two primary limitations that warrant discussion. First, the absence of a control group constrains our ability to isolate the effects of the program from other potential influences on language development. One might hypothesize that linguistic improvement occurs simply through immersion in an academic environment, which inherently demands Superior-level linguistic functions such as presenting opinions, using specialized vocabulary, formulating hypotheses, and engaging with abstract topics. However, this hypothesis is challenged by existing research on comparable populations, which indicates that nearly 70% of students in heritage learner courses fail to demonstrate improvements in written proficiency (Gatti et al., 2024). These findings strongly suggest that the observed enhancement in oral bilingual functional proficiency is unlikely to be solely attributable to general college exposure.

The second limitation is the relatively small sample size, lacking an L2 Spanish group. While larger participant pools are often desirable, it is important to note that our study provides high-quality, longitudinal data—a rarity in this field due to the significant time and financial investments required (each OPIc test costs $73). This depth of data allows for nuanced insights that may not be captured in larger-scale studies with less intensive data collection methods. We now make this limitation more explicit and underscore the importance of future replication. As the first empirical study to examine oral proficiency development in heritage and L2 learners within a translation and interpreting program, our goal is to open a new line of research. We hope these findings serve as a foundation for further studies with larger and more diverse samples that can build on and refine our results. While our study concentrates on oral gains, future work should examine how these programs support the development of literacy and metalinguistic skills, especially among heritage speakers.

Despite these limitations, our findings provide a foundation for future research and offer valuable insights into language development theories and language education programs. Oral proficiency appears to benefit from translation and interpreting programs, yet future research should explore the impact on writing proficiency among heritage learners to assess whether similar developmental patterns emerge.

Although our study is situated within an HSI, the findings offer valuable insights for institutions beyond this designation. Colleges and universities with significant bilingual or immigrant-origin student populations may similarly benefit from incorporating translation and interpreting training into their curricula. Such integration can serve as a practical strategy for developing students' bilingual skills while enhancing academic engagement and professional readiness across a range of educational settings.

On the pedagogical front, the inclusion of activities tailored to heritage speakers—specifically aimed at developing functions associated with the Advanced and Superior levels of proficiency, as well as incorporating and building upon prior child language brokering experiences—could significantly enhance the effectiveness of these courses. Such tailored activities might include complex mediation tasks, advanced register-shifting exercises, and in-depth analysis of culturally nuanced texts. Our research group is currently collecting data on these aspects to further refine our understanding of how translation and interpreting training can be optimized for heritage language learners. This ongoing research promises to contribute to the development of more targeted and effective language education strategies, potentially enhancing approaches to heritage language instruction and bilingual proficiency development. While our work is focused on a translation and interpreting program, similar activities could also be incorporated into general language programs for heritage learners. Including translation and interpreting activities within heritage language programs could leverage heritage learners' bilingual experiences, such as informal brokering, and foster advanced bilingual skills that are increasingly valuable in both professional and community settings. This cross-disciplinary approach has the potential to better align heritage language education with real-world applications, ultimately supporting both academic and professional goals.

10 Conclusion

This study contributes to reconciling the historically challenging relationship between SLA and translation studies (Colina, 2002). By providing empirical evidence of the benefits of translation and interpreting training on bilingual proficiency, our research opens new avenues for collaboration between these fields at both applied and theoretical levels. Importantly, these findings suggest that translation should not be seen solely as a means or as an end (Carreres, 2014), but rather as both simultaneously. Even when conceptualized as an end goal in itself, translation operates as a means of continued language development. Results on proficiency development highlight the importance of considering individual factors such as bilingual profile and initial proficiency. These results pave the way for new research into the cognitive mechanisms driving proficiency development through translation and interpreting and suggest pedagogical adjustments to include heritage speakers in the design of translation and interpreting programs. Longitudinal studies exploring the long-term effects of such training and identifying other influential factors in proficiency development are crucial next steps. As the fields of SLA and translation studies continue to converge, we anticipate a rich and productive dialogue that will significantly advance our understanding of language learning and bilingual development.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: https://osf.io/829gw/.

Ethics statement

The studies involving humans were approved by Eliana Forero, John Jay College of Criminal Justice. 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.

Author contributions

CL-A: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Supervision, Visualization, Writing – original draft, Writing – review & editing. AM-G: Conceptualization, Writing – review & editing.

Funding

The author(s) declare that financial support was received for the research and/or publication of this article. This research has been supported by the Language Resource Center – CILC, funded by the U.S. Department of Education (#P229A220013). Publication fees were covered by the Office of Advancement of Research, John Jay College of Criminal Justice.

Acknowledgments

We would like to express our gratitude to all the students who participated in this study, as well as Professor Alberta Gatti, for her continuous support of this project.

Conflict of interest

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. Gen AI was used during the editing process of this manuscript to improve clarity and readability of the text.

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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.2025.1609736/full#supplementary-material

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